

Siphonosoma hawaiiense, a New Sipunculoid from Hawaii (Sipunculoidea)

S. J. EDMONDS¹

Siphonosoma hawaiiense n. sp.

Figs. 1-4

Siphonosoma Spengel, 1912; Fisher, 1950 p. 805; Fisher, 1952 p. 380.

SPECIMENS AND LOCALITY: Six specimens collected by F. I. Kamemoto on Sept. 29, 1964, from hard-packed sand above the level of low water near Kualoa, Oahu, Hawaii were kindly sent to me for identification by L. G. Eldredge, Department of Zoology, University of Hawaii, Honolulu. A type specimen has been lodged at the Bernice P. Bishop Museum at Honolulu (BM numbers: Invertebrate W-294 for the type specimen, and Invertebrate W-295 for the cotypes).

DESCRIPTION: The length of the trunk is 9-15 cm and the width, which is variable in different parts of any of the specimens, is 3-5 cm. The length of the fully extended introvert of two specimens is 4-5 cm and the width about 2 mm. The colour of the specimens preserved in alcohol is pale straw. The skin of some of the specimens is very thin and almost transparent; of others it is much wrinkled. At the anterior extremity of the introvert of one specimen there is a crown of about 50 short and fine tentacles. The anterior region of the introvert also bears about 30 rows of yellow-coloured, blunt spines the shape of which resembles to some extent that of a slipper. The hooks are about 0.15-0.3 mm long and they become progressively smaller the more posterior they are placed on the introvert. The introvert also bears numerous rings of small yellowish papillae which in the anterior region are closely associated with the hooks. These papillae are about 0.03-0.05 mm in diameter. In the centre of each papilla there is a clear circular area which is surrounded by a yellowish granular region. The papillae on the trunk are of two

kinds: one is small (about 0.03-0.05 mm in diameter) and looks very much like those on the introvert, while the other is larger (0.25-0.40 mm in diameter) but less numerous. The latter kind of papilla is largest at the base of the introvert and on the posterior surface of the trunk.

The longitudinal musculature is not very noticeable externally. When a specimen is dissected, however, 14-17 well-developed longitudinal bands of muscles, which anastomose to some extent, are observable in the midbody region. The circular musculature is continuous. Four introvert retractors arise at different levels, a dorsal pair more anteriorly from muscles 4-5 on each side of the nerve cord and a ventral pair more posteriorly from muscles 2-3. The dorsal and ventral retractors on each side fuse anteriorly to form a single muscle on each side of the oesophagus.

The alimentary canal consists of an oesophagus, descending and ascending intestinal spirals, a short rectum, and an anus. It was filled with coarse particles of sand and coral (?) fragments. An intestinal caecum is present. A polian or contractile vessel with wrinkled edges runs along the dorsal surface of the oesophagus. Strongly developed wing muscles are attached to the posterior part of the rectum. A well-developed spindle muscle is fastened anteriorly to the body-wall in front of the anus and posteriorly at the terminal tip. The spindle muscle gives off anteriorly two strong, wing-like strands of muscle which are fastened to the body-wall along muscle 5 or 6 on each side of the nerve cord near the dorsal retractors. An additional fastener arises from the last whorl of the intestine and runs to the body-wall at a point near the base of the right dorsal retractor. Two fine fasteners also run in an almost parallel manner from the last whorl of the intestine to muscle 1 on each side of the nerve cord at points just posterior to the level of attachment

¹Department of Zoology, University of Adelaide, South Australia. Manuscript received March 22, 1965.

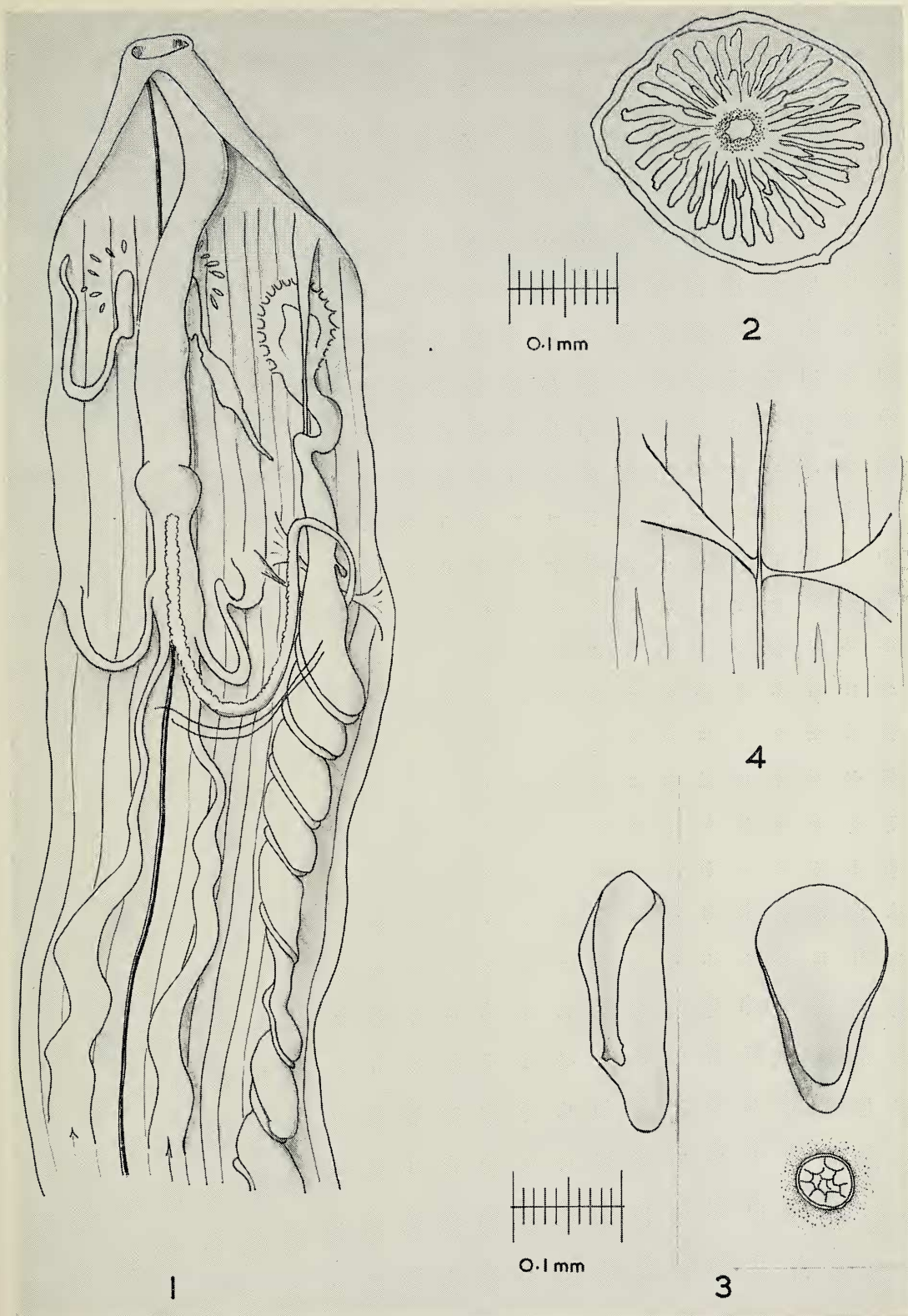


FIG. 1-4. *Siphonosoma hawaiiense*. 1, Dissected specimen; 2, papilla from base of introvert; 3, hooks and papilla from introvert; 4, arrangement of fasteners at anterior extremity of spindle muscle.

of the dorsal retractors. Coelomic papillae but no transverse body dissepiments are present.

The nephridia are large, brown, and free except for about a quarter of their length. They extend as far as the base of the dorsal retractor. Well-developed eggs were found in the body cavities of the two specimens; they were generally uniform in size and about 95–110 μ in diameter. They appeared to be mature. The nerve cord is not fixed firmly to the body-wall.

SYSTEMATIC POSITION: These specimens are members of the subgenus *Siphonosoma sensu strictu* of Fisher 1952. They are very close to *S. pescadolense* Sato 1939 and *S. takatsukii* Sato 1935, the former collected from Formosa and the latter from the Caroline Islands. They differ most noticeably from Sato's species in that they possess a well-developed intestinal or rectal caecum.

I am indebted to Rod. Wells for the drawings of *S. hawaiiense*.

REFERENCES

- FISHER, W. K. 1950. Two new subgenera and a new species of *Siphonosoma* (Sipunculoidea). *Ann. Mag. Nat. Hist.*, ser. 12(3): 805–808.
- 1952. The sipunculid worms of California and Baja California. *Proc. U. S. Nat. Mus.* 102(44):373–437.
- SATO, H. 1935. Sipunculoidea and Echiuroidea of the West Caroline Islands. *Sci. Rept. Tohoku Imp. Univ.*, ser. 4, Biology 10:299–329.
- 1939. Studies on the Echiuroidea, Sipunculoidea and Priapuloida of Japan. *Ibid.* 14:339–460.